

What is claimed is:

1. A sound radiating structure comprising

a plurality of cavity-defining members, each of said cavity-defining members being of a hollow shape to define an inner cavity that extends in a particular direction, the inner cavity defined by each of said cavity-defining members having a length in the particular direction different from lengths of the inner cavities defined by other said cavity-defining members, the inner cavity defined by each of said cavity-defining members opening outwardly at least one of opposite ends of said cavity-defining member,

the inner cavities defined by said cavity-defining members being located adjacent to each other,

wherein when a sound wave is input to said sound radiating structure, each of said cavity-defining members re-radiates the sound wave by resonance.

2. A sound radiating structure as claimed in claim 1 wherein said plurality of cavity-defining members are disposed so as to adjoin each other perpendicularly to the particular direction in which the inner cavities defined thereby extend.

3. A sound radiating structure as claimed in claim 1 which further comprises a support panel on which said plurality of cavity-defining members are supported.

4. A sound radiating structure as claimed in claim 1 wherein the inner cavity defined by each of said cavity-defining members opens outwardly at one of the opposite ends of said cavity-defining member and is closed at another of the opposite ends.

5. A sound radiating structure as claimed in claim 1 where the inner cavity defined by each of said cavity-defining members opens outwardly at the opposite ends of said cavity-defining member, and each of said cavity-defining members includes a detachable closure provided at least one of the opposite ends for closing the inner cavity at the at least one end.

6. A sound radiating structure as claimed in in claim 1 wherein each of said cavity-defining members is constructed in such a manner that the inner cavity defined thereby is adjustable in the length in the particular direction.

7. A sound radiating structure as claimed in claim 1 wherein each of said cavity-defining members has a side portion extending along the particular direction, and the side portion has a side opening formed therein and communicating with the inner cavity defined by said cavity-defining member.

8. A sound radiating structure as claimed in claim 7 wherein the side portion of each of said cavity-defining members has a flat outer surface, and said plurality of cavity-defining members are disposed in such a manner that the flat outer surfaces of the side

portions in said plurality of cavity-defining members together constitute a single substantially-continuous flat outer surface of said sound radiating structure.

9. An acoustic room comprising:
 - a sound radiating structure as recited in claim 1; and
 - an inner wall surface or ceiling surface for installation thereon of said sound radiating structure.
10. A sound scattering method comprising
 - scattering a sound using sound re-radiation based on resonance of a resonant structure.